

Ten Years of DHS Surveys

Since 1984, findings from the Demographic and Health Surveys (DHS) program have provided policymakers and researchers in developing countries with the data needed for decision-making and program planning. The most important source of data is the individual interviews with women of reproductive age. These provide baseline demographic and health data on women age 15-49 and their children under age five. Some of the results of these interviews are summarized in a recent DHS publication, *Women's Lives & Experiences: A Decade of Research Findings from the Demographic and Health Surveys Program*.

More than 360,000 women have been interviewed in the course of 10 years of DHS research, making the program one of the largest sources of demographic and health data in the world. Combined, the survey respondents represent the experiences of more than 280 million women of reproductive age.



MACRO INTERNATIONAL/BERNARD BARRÈRE

Over the course of a decade of survey research in 42 countries the DHS program has documented positive changes in the health and well-being of women and children in developing countries. Here a woman in Niger is interviewed during the 1992 DHS survey in that country (see article page 4).

DHS data have shaped national and international policies, programs, and funding priorities in population and health. The national sample surveys provide information on basic indicators of social progress, including fertility, mortality, migration, family planning, maternal and child health, nutritional status, household living conditions, and educational attainment. DHS findings are a vital resource for decisionmakers who seek to understand and improve the living conditions and life opportunities of women and their families.

Over the years, DHS surveys have documented positive changes in women's health and well-being in many

countries. DHS findings provide evidence of:

- Increases in educational attainment among women in all regions;
- Marked fertility declines in many countries, including some in sub-Saharan Africa;
- Decreases in desired family size and increases in the use of modern contraceptive methods;
- Increases in age at first marriage and age at first birth;
- Greater access to medical care during pregnancy; and
- Improved survival of children.

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Results from DHS surveys have also raised warning flags about women's health and well-being in many countries. The results from the Niger DHS survey, the first national survey of its kind in that country, prompted the Minister of Finance and Planning to observe that Niger has some of the worst health indicators reported since the start of the DHS program. In the preface to the survey report he wrote, "These results require that we act quickly to improve this disastrous situation regarding Nigerien women and children. Would we not have acted

differently in the past if we had regularly received this kind of data and indicators? Have we given enough attention to the production, management, and use of statistical information in our country?"

After a decade of research in 42 countries, the DHS program has identified and documented many challenges to improving the well-being of women in developing countries.

- In 13 countries, more than half of women of reproductive age have never been to school.
- In 14 countries, at least half of the women married before age 18.
- In 18 countries, women received medical assistance at delivery for fewer than half of their births.

- In 10 countries, fewer than half of married women know of a source for a modern contraceptive method.
- In 22 countries, more than one-quarter of married women have an "unmet need" for family planning.
- In 30 countries, at least one-quarter of women had a child under five years of age die.

Given the central role of good health in social and economic development, information from the DHS surveys will continue to play a vital role in many developing countries. In the third phase of the DHS program (1992-97), technical assistance will be provided for at least 30 surveys. ■

Variation in the Timing of Marriage and Entry into Parenthood

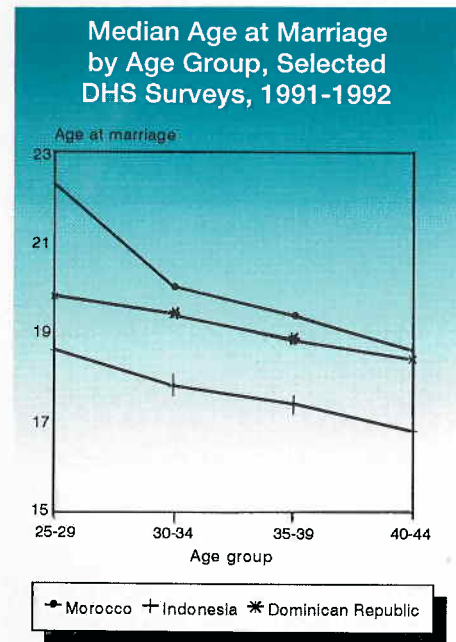
A recently published comparative analysis of data from 37 DHS survey countries demonstrates that there is remarkable variation both within and across geographical regions in the timing of marriage and first birth, the stability of marriage, the extent of premarital childbearing, and the prevalence of polygyny. The analysis also documents a trend toward later marriage and first birth in many countries (see New Publications, page 9, Westoff et al., *Marriage and Entry into Parenthood*).

The variation in marriage patterns can be illustrated by comparing the widely differing experience of women in two countries: Niger and Tunisia. Women in Niger marry on average at age 15 and have their first birth at age 17. By 10 to 14 years after they first marry, two-thirds are still in their first marriage. About one-third of married women in Niger are in a polygynous marriage (i.e., their husbands have more than one wife). In contrast, Tunisian women first marry at about age 22 and have their first birth at age 24. By 10 to 14 years after they first marry, 94 percent of women are still

in their first marriage. Polygyny is not practiced in Tunisia.

Overall, the percentage of women age 25-29 who married by age 20 varies from less than 30 percent in Botswana, Namibia, Sri Lanka and Tunisia to 90 percent or more in Mali and Niger. The percentage of women age 25-29 who had a first birth by age 20 ranges from 14 percent in Tunisia to 74 percent in Niger. Almost without exception, the percentages of women married and having a birth by age 20 are lower in urban than rural areas and decrease with increasing education.

In many countries, younger women are marrying later and having their first birth later than older women (see figure). These trends are well established in the Near East/North Africa region where Egypt, Jordan, Morocco, and Tunisia have experienced substantial increases in age at union and first birth. In sub-Saharan Africa, there is some evidence of a trend toward later marriage in most countries included in the analysis, except Burundi, Mali and Niger. Substantial increases in age at marriage and first birth are clearly evident in Indonesia, Sri Lanka,



In many countries, women are marrying later and having their first birth later. This trend, which has the effect of reducing fertility, can be seen in all major regions of the world. Here the increase in age at marriage among the youngest women is particularly apparent in Morocco.

and Thailand. In Latin America, the picture is more mixed with increases apparent in Colombia, the Dominican Republic, Peru, and Trinidad and Tobago, but less distinct trends in other countries. ■

Use of Antenatal and Delivery Services Remains Low in Morocco

The second DHS survey in Morocco, *Enquête Nationale sur la Population et la Santé 1992 (ENPS-II)*, documents a substantial decline in fertility but little progress in the utilization of important maternal health services. Comparing data from the ENPS-II with that from the ENPS-I (the 1987 DHS survey in Morocco) provides a measure of the amount of recent change in maternal and child health indicators.

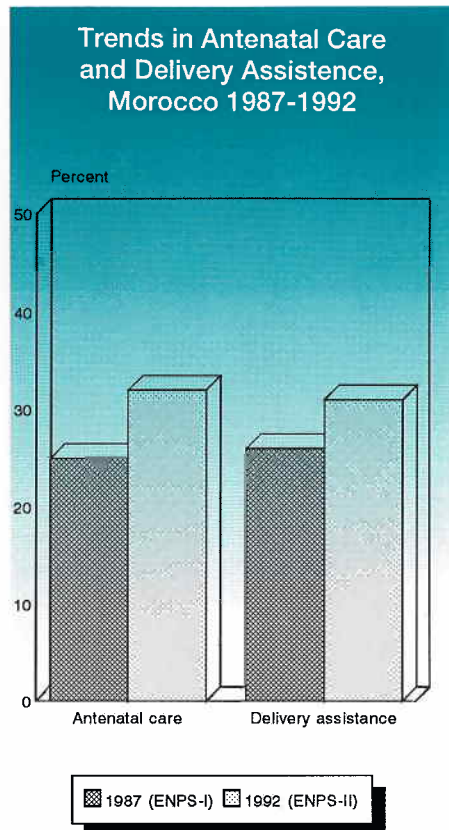
Fertility has decreased 17 percent in the last five years. Between 1987 and 1992, the total fertility rate fell from 4.8 to 4.0 births per woman. Fertility levels vary significantly with place of residence and level of education: urban women (2.5 children) or those with at least secondary education (2.0 children) give birth to three children less than women from rural areas (5.5) or those having no education (4.9).

The reduction in fertility reflects changes in attitudes about the size of the family. Among married women, one of every two wants to have no more children, and one in five wants to space the next child. Only about one in four women (27 percent) wants to have a child soon. Similarly, according to the male survey, more than four in ten men want to limit their childbearing.

Much of the decline in fertility can, however, be attributed to the increasing use of contraception by married women. Between 1987 and 1992, contraceptive use rose from 36 percent to 42 percent, a relative increase of 23 percent.

The use of modern methods is less evenly distributed in Morocco than in other Arab countries. In countries such as Egypt, Jordan, and Tunisia where current use is relatively high, clinical methods predominate, especially use of the intrauterine device (IUD). In Morocco, on the other hand, 68 percent of contraceptive users rely on the pill.

Overall, it is estimated that two in ten married women have an unmet need for family planning. This group includes women who are not using any contraceptive method, but who



While many maternal health indicators show improvement in Morocco, utilization of antenatal and delivery care services remains low. In 1992, less than a third of mothers received antenatal care or assistance at delivery from a health professional.

want to wait two years or more before their next birth (9 percent), and those who wish to limit their progeny (12 percent). Satisfying the potential demand for family planning could increase the level of contraceptive prevalence to 64 percent.

In the area of maternal and child health, there has been a 17 percent decline in infant and child mortality over a period of five years. Infant mortality dropped from 69 to 57 deaths per 1,000 births and child mortality (at ages 1-4 years) declined from 24 to 20 deaths per 1,000 children.

With regard to maternal mortality, during the seven-year period preceding the survey (1985-91), there were 332 maternal deaths per 100,000 births.

There have been some improvements in maternal health indicators in Morocco, particularly with the introduction (five years preceding the survey) of tetanus toxoid vaccination for pregnant women. However, use of antenatal and delivery care services remains low. Comparing the 1987 results (ENPS-I) with those from the 1992 survey (ENPS-II), antenatal consultations with health personnel increased only slightly from 25 to 32 percent, and deliveries assisted by health professionals showed an even smaller increase, from 26 to 31 percent. These figures indicate that more than two-thirds of Moroccan mothers are not receiving antenatal/delivery care.

Another area in which little progress occurred was in the administration of oral rehydration therapy (ORT) to children with diarrhea. Only 14 percent of children were treated with solution prepared from ORS packets, and 3 percent received an oral rehydration solution prepared at home.

In contrast, vaccination coverage rates among children continue to increase; the proportion of children age 12-23 months fully vaccinated against the six principal childhood diseases (tuberculosis, polio, diphtheria, pertussis, tetanus and measles) reached 76 percent in 1992.

Survey results indicate that about one in four children (23 percent) suffers from chronic undernutrition or stunting (8 percent are severely stunted). In 1987, the level of chronic undernutrition was 29 percent.

The 1992 ENPS-II was implemented by the Ministry of Public Health and included a nationally representative sample of 9,256 women age 15-49 and 1,336 men age 20-70. The results of the survey are presented in various reports including a final report (in French) and a summary report (in French and English). ■

Fertility and Childhood Mortality in Niger Among the Highest in the World

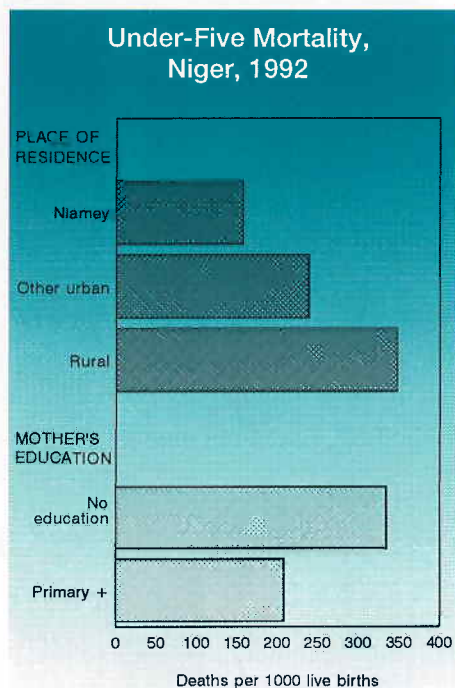
Findings of the DHS survey in Niger, *Enquête Démographique et de Santé au Niger, 1992 (EDSN)*, indicate that fertility is very high in that country. Women have an average of 7.4 children in their lifetime.

The main factors contributing to the high fertility in Niger are early age at marriage, teenage childbearing, and the low levels of contraceptive use. Nearly half of the women are married by the age of 15; by age 17, two out of five women have at least one child; and only 2 percent of married women (most of them from the capital, Niamey) were using a modern contraceptive method at the time of the survey.

Another important reason fertility is high in Niger is that, in general, both men and women desire many children. Ideal family size is more than 8 children among women 15-49, and more than 12 among husbands.

In the area of health, the findings from the EDSN point to very poor maternal and child health conditions, with high levels of undernutrition and childhood mortality.

Among children under five, one in three is stunted, i.e., chronically undernourished, and one in six is wasted, i.e., suffers from acute undernutrition.



Child mortality is very high in Niger, particularly among children who live in rural areas (347 deaths per 1,000) and those whose mothers have no education (334 deaths per 1,000). An important factor contributing to the high mortality is the low level of childhood immunization: only 17 percent of children age 12-23 months are fully vaccinated.

Almost one of every three children (318 per 1,000) dies before the fifth birthday. Although many infants die during their first year of life (123 per 1,000), mortality remains very high between the first and second birthday (88 per 1,000), and between the second and third birthday (89 per 1,000).

Differentials in mortality by residence and education are marked. Under-five mortality in rural areas (347 per 1,000) is more than twice that found in Niamey (157 per 1,000), and children whose mothers have no education are 1.5 times more likely to die before their fifth birthday than children of women with primary education or more (334 versus 208 per 1,000).

The low level of immunization among young children in Niger contributes to child mortality. The vast majority of children are not protected against the major preventable diseases. Fifty-nine percent of children age 12 to 23 months have never been immunized and only 17 percent have received all of the recommended vaccinations.

Maternal mortality is also high in Niger. One of every three women who dies between the age of 15 and 49 dies from maternal causes, and the risk of dying from these causes is estimated at about 1 in 25.

One of the factors contributing to the high maternal mortality rate is that so few women receive either antenatal care or medical assistance at delivery. According to the survey findings, women received antenatal care for only 30 percent of births and only about half of these mothers (15 percent of births) received assistance at delivery from a health professional.

The 1992 DHS survey in Niger was implemented by the Direction de la Statistique et des Comptes Nationaux and included a national sample of 6,503 women aged 15-49 and 1,570 husbands. A final report and summary report are available in French. ■

New DHS Fellows

The DHS Fellows Selection Committee announced in July that two new fellows have been chosen to join the DHS staff in October 1994. They are Omar Ben Ahmad from Ghana (and Johns Hopkins University) and Prosper Poukouta from the Congo (and Pennsylvania State University).

The two-year DHS fellowships are designed to enable promising young scholars to develop the skills necessary to conduct and analyze nationally representative population and health surveys in developing countries. DHS fellows are expected to make significant contributions to the analysis of DHS data and to assist in the implementation of surveys.

No new applications for DHS fellowships are being accepted at this time. The next announcement for fellowships will be in 1995. ■

Child Health and Survival Remains Poor in Malawi

Findings from the 1992 DHS survey in Malawi (MDHS) indicate that despite some recent improvement in child survival, Malawi continues to have one of the highest levels of under-five mortality in Africa. Nearly one in seven children dies before the first birthday, and nearly one in four dies before the age of five.

A small improvement in survival in the first month of life (neonatal mortality), has been effectively offset by a rise in postneonatal mortality (1-11 months) over the past decade. As a result, the level of infant mortality has remained largely unchanged since the early 1980s at around 135 deaths per 1,000 live births.

A number of factors may be associated with continued poor survival in Malawi. These include: increasing prevalence of AIDS, continued difficulty in the battle against debilitating malaria, instability in household availability of food, poor economic performance at the national level, and infant feeding patterns that exacerbate already poor pregnancy outcome.

Nutritional status—a key determinant of mortality risk—is poor among children in Malawi. Stunting, which is related to chronic undernutrition, is higher in Malawi than in any African country surveyed in the DHS program. Nearly half of all children under the age of five are stunted (i.e., short for their age). In the Southern region, where recent drought has reduced household food supplies, 1 in 15 children is wasted (i.e., too thin), an indicator of acute undernutrition and a very close correlate of mortality risk.

The MDHS data indicate that poor infant feeding practices may begin the process of deteriorating health and increasing susceptibility to death. Only 3 in 100 children under four months of age are exclusively breastfed, as recommended by the World Health Organization. By two to three months of age, three-quarters of children are being given food and liquid supplements. Not only does this pattern of feeding reduce the amount of nutritionally-superior breast milk a child receives, but also it is likely to intro-

duce disease agents that can further increase susceptibility to fatal illnesses, including diarrheal diseases.

On the positive side, the results of the MDHS indicate that there has been progress in the provision of basic maternal and child health services. Eighty-two percent of children age 12-23 months are fully immunized, and only 3 percent have not received any vaccinations. This represents a significant improvement in vaccination coverage in the five years preceding the survey. Coverage for BCG and the first dose of DPT and polio vaccine is 97 percent.

Mothers received antenatal care from a trained health professional for 90 percent of recent births. For 86 percent of births, mothers received at least one dose of tetanus toxoid during the pregnancy. Over half of recent births were delivered in a health facility.

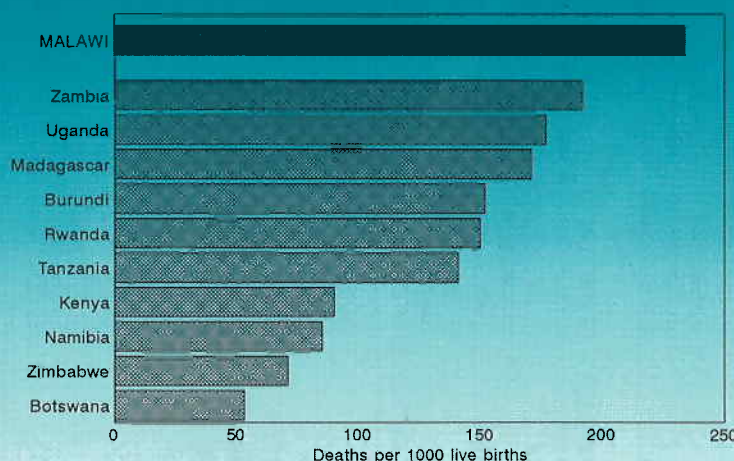
Maternal mortality is an indicator of the reproductive health of women in a population. The MDHS collected data that allows assessment of the level of mortality associated with pregnancy and maternity. Using direct estimation methods, a maternal mortality ratio of 620 maternal deaths per 100,000 births was estimated. This is a very high level and underscores the need in Malawi for improved women's health services, including fertility control services.

Fertility remains high in Malawi. At current levels, a woman will have an average of 6.7 children in her lifetime. This represents a decline from 7.5 children per woman estimated in the 1984 Family Formation Survey. The decline is due, at least in part, to increased use of contraception over the last decade. At the time of the DHS survey, 13 percent of Malawian women were using a method of family planning; 7 percent were using modern methods. In 1984, only 1 percent of women were using a modern method.

Ideal family size also changed in the period between 1984 and 1992, decreasing from six to five children, and there were modest increases in age at first marriage and age at first birth. Taken together, these findings indicate that, like many other countries in the region, Malawi is in the early stages of the fertility transition.

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Under-five Mortality in Sub-Saharan Africa, DHS Surveys, 1987-1993



Nearly one in four children dies before the age of five in Malawi. Although many factors contribute to child mortality, chronic undernutrition is thought to play an important role in Malawi. Nearly half of the children measured in the 1992 Malawi DHS survey were stunted.

Summary of Demographic and Health Surveys as of October 1994

SUPPLEMENTAL MODULES/ADDITIONAL QUESTIONS

Child Anthropometry	
Service Availability Info	
Social Marketing	
Maternal Mortality	
AIDS	
Women's Employment	
Causes of Death	
Sterilization	
Pill Compliance	
Maternal Anthropometry	

DATA
REPORT FILES

MALE/HUSBAND
SURVEY

SAMPLE
SIZE

RESPON-
DENTS

CORE QUES-
TIONNAIRE

IMPLEMENTING
ORGANIZATION

DATE OF
FIELDWORK

REGION/SURVEY
COUNTRY

SUB-SAHARAN AFRICA

REGION/SURVEY COUNTRY	DATE OF FIELDWORK	IMPLEMENTING ORGANIZATION	CORE QUESTIONNAIRE	RESPONDENTS	SAMPLE SIZE	MALE/HUSBAND SURVEY	Child Anthropometry	Service Availability Info	Social Marketing	Maternal Mortality	AIDS	Women's Employment	Causes of Death	Sterilization	Pill Compliance	Maternal Anthropometry	DATA REPORT FILES
DHS-I																	
Botswana	Aug-Dec 1988	Ministry of Health	A/B	AW 15-49	4,368						X				X		FR
Burundi	Apr-Jul 1987	Dép. de la Pop., Min. de l'Intérieur	B	AW 15-49	3,970	542 Husbands											FR
Ghana	Feb-May 1988	Ghana Statistical Service	B	AW 15-49	4,488	943 Husbands		X									FR
Kenya	Dec-May 1989	Nat. Council for Population and Dev.	B	AW 15-49	7,150	1,133 Husbands											FR
Liberia	Feb-Jul 1986	Min. of Planning & Economic Affairs	B	AW 15-49	5,239												FR
Mali	Mar-Aug 1987	Institut du Sahel: USEDI/CERPOD	B	AW 15-49	3,200	970 Men 20-55											FR
Ondo State, Nigeria	Sep-Jan 1986/87	Ministry of Health, Ondo State	B	AW 15-49	4,213												FR
Senegal	Apr-Jul 1986	Min. de l'Economie et des Finances	B	AW 15-49	4,415							X					FR
Sudan	Nov-May 1989/90	Dept. of Stat., Min. of Fin. & Econ. Plan.	B	EMW 15-49	5,860				X								FR
Togo	Jun-Nov 1988	Unité de Recherche Dém., U. du Bénin	B	AW 15-49	3,360												FR
Uganda	Sep-Feb 1988/89	Ministry of Health	B	AW 15-49	4,730												FR
Zimbabwe	Sep-Jan 1988/89	Central Statistical Office	A/B	AW 15-49	4,201						X						FR
DHS-II																	
Burkina Faso	Dec-Mar 1992/93	Inst. Nat. de la Stat. et de la Dém.	B	AW 15-49	6,354	1,845 Men 18+					X						FR
Cameroon	Apr-Sep 1991	Min. du Plan et de l'Amén. du Terr.	B	AW 15-49	3,871	814 Husbands					X						FR
Madagascar	May-Nov 1992	Centre Nat. de Recherches sur l'Env.	B	AW 15-49	6,260				X								FR
Malawi	Sep-Nov 1992	National Statistical Office	B	AW 15-49	4,850	1,151 Men 20-54				X							FR
Namibia ¹	Jul-Nov 1992	Min. of Health and Social Services	B	AW 15-49	5,421					X							FR
Niger	Mar-Jun 1992	Dir. de la Stat. et des Comptes Nat.	B	AW 15-49	6,503	1,570 Husbands				X							FR
Nigeria	Apr-Oct 1990	Federal Office of Statistics	B	AW 15-49	8,781					X							FR
Rwanda	Jun-Oct 1992	Office National de la Population	B	AW 15-49	6,551	598 Husbands											FR
Senegal	Nov-Aug 1992/93	Dir. de la Prévision et de la Stat.	B	AW 15-49	6,310	1,436 Men 20+				X							FR
Tanzania	Oct-Mar 1991/92	Bureau of Stat. of the Planning Comm.	B	AW 15-49	9,238	2,114 Men 15-60				X							FR
Zambia	Jan-May 1992	University of Zambia	B	AW 15-49	7,060					X							FR
DHS-III																	
Burundi	1995	Dép. de la Pop., Min. de l'Intérieur	B	AW 15-49	5,000	2,000 Men 15-59											FR
Central African Rep.	Sep-Jan 1994/95	Div. des Stat. Dém. et Sociales	B	AW 15-49	6,000	2,000 Men 15-59			X								FR
Côte d'Ivoire	Jun-Sep 1994	Inst. Nat. de la Statistique	B	AW 15-49	7,000	2,500 Men 15-59											FR
Ghana	Sep-Dec 1993	Ghana Statistical Service	B	AW 15-49	4,562	1,302 Men 15-59											PR
Kenya	Feb-Aug 1993	Nat. Council for Population and Dev.	B	AW 15-49	7,540	2,336 Men 20-54					X						FR
Mali	Apr-Jul 1995	Dir. Nat.Stat./Cel. Plan. Stat., M.S.	B	AW 15-49	9,000	3,000 Men 15-59				X							FR
Tanzania	Jul-Sep 1994	Bureau of Statistics	B ²	AW 15-49	4,500	2,250 Men 15-59								X			FR
Uganda	Jan-May 1995	Dept. of Statistics	B	AW 15-49	5,500	1,500 Men 15-54											FR
Zimbabwe	Jul-Nov 1994	Central Statistical Office	A	AW 15-49	6,000	1,500 Men 15-59				X							FR
ASIA/NEAR EAST/NORTH AFRICA																	
DHS-I																	
Egypt	Oct-Jan 1988/89	National Population Council	A	EMW 15-49	8,911												FR
Indonesia	Sep-Dec 1987	Central Bureau of Statistics/NFPCB	A	EMW 15-49	11,884			X									FR
Morocco	May-Jul 1987	Ministère de la Santé Publique	A	EMW 15-49	5,982									X			FR
Nepal (KAP-GAP)	Feb-Apr 1987	New Era	-	CMW 15-49	1,623												FR

Country	Survey Period	Survey Type	Survey Description	Sample Size	Age Group	Survey Design	Year	Month	Recode
Sri Lanka	Jan-Mar 1987	A	Dept. of Cen. & Stat., Min. of Plan Impl.	EMW 15-49	5,865	FR			Raw
Thailand	Mar-Jun 1987	A	Inst. of Pop. Studies, Chulalongkorn U.	EMW 15-49	6,775	FR		X	Recode
Tunisia	Jun-Oct 1988	A	Office Nat. de la Fam. et de la Pop.	EMW 15-49	4,184	FR		X	Recode
DHS-II									
Egypt	Nov-Dec 1992	A	National Population Council	EMW 15-49	9,864	FR		X	Raw
Indonesia	May-Jul 1991	A	Central Bureau of Stat./NFPCB/MOH	EMW 15-49	22,909	FR		X	Recode
Jordan	Oct-Dec 1990	A	Dept. of Statistics, Min. of Planning	EMW 15-49	6,461	FR			Raw
Morocco	Jan-Apr 1992	A	Ministère de la Santé Publique	AW 15-49	9,256	FR		X	Raw
Pakistan	Dec-May 1990/91	B	Nat. Institute of Population Studies	EMW 15-49	6,611	FR			Raw
Yemen	Nov-Jan 1991/92	-	Central Statistical Organization	EMW 15-49	5,687	FR		X	Raw
DHS-III									
Bangladesh	Nov-Mar 1993/94	A	Mitra & Associates/NIPORT	EMW 15-49	10,000	PR		X	Raw
Gaza/West Bank	May-Aug 1995	B	Palestine Bureau of Statistics	EMW 15-49	6,000	PR			Recode
Indonesia	Jul-Sep 1994	A	Central Bureau of Stat./NFPCB/MOH	EMW 15-49	28,000	FR		X	Raw
Kazakhstan	Apr-Jun 1995	B	Nutrition Research Center	AW 15-49	5,000	FR		X	Raw
Morocco (Panel)	Jan-Feb 1995	A/B	Ministère de la Santé Publique	AW 15-49	3,500	FR			Raw
Philippines	Apr-Jun 1993	A	National Statistics Office	AW 15-49	15,029	FR		X	Recode
Turkey	Aug-Oct 1993	A	General Directorate of MCH/FP, MOH	EMW <50	7,500	FR		X	Recode
LATIN AMERICA & CARIBBEAN									
DHS I									
Bolivia	Feb-Jul 1989	A	Instituto Nacional de Estadística	AW 15-49	7,923	FR		X	Recode
Bolivia (Health)	Feb-Jul 1989	A	Instituto Nacional de Estadística	AW 15-49	7,923	FR		X	Recode
Brazil	May-Aug 1986	A	Soc. Civil Bem-Estar Fam. no Brasil	AW 15-44	5,892	FR			Recode
Colombia	Oct-Dec 1986	A	Corp. Cen. Reg. de Pob./Min. de Salud	AW 15-49	5,329	FR		X	Recode
Dominican Rep.	Sep-Dec 1986	A	Consejo Nac. de Población y Familia	AW 15-49	7,649	FR		X	Recode
Dominican Rep. (Exp.)	Sep-Dec 1986	-	Consejo Nac. de Población y Familia	AW 15-49	3,885	FR		X	Raw
Ecuador	Jan-Mar 1987	A	Gen. de Estud. de Pob. y Pater. Res.	AW 15-49	4,713	FR			Recode
El Salvador	May-Jun 1985	A	Asociación Demográfica Salvadoreña	AW 15-49	5,207	FR		X	Recode
Guatemala	Oct-Dec 1987	A	Inst. de Nutrición de Cent. y Panamá	AW 15-44	5,160	FR		X	Recode
Mexico	Feb-May 1987	A	Dir. Gen. de Plan. Fam., Sec. de Salud	AW 15-49	9,310	FR		X	Recode
Peru	Sep-Dec 1986	A	Instituto Nacional de Estadística	AW 15-49	4,999	FR		X	Recode
Peru (Exp.)	Sep-Dec 1986	-	Instituto Nacional de Estadística	AW 15-49	2,534	FR			Raw
Trinidad/Tobago	May-Aug 1987	A	Family Plan. Assoc. of Trinidad/Tobago	AW 15-49	3,806	FR			Recode
DHS-II									
Brazil (NE)	Sep-Dec 1991	A	Soc. Civil Bem-Estar Fam. no Brasil	AW 15-49	6,222	FR		X	Raw
Colombia	May-Aug 1990	A	PROFAMILIA	AW 15-49	8,644	FR		X	Raw
Dominican Rep.	Jul-Nov 1991	A	Asoc. Domin. Pro-Bienestar de la Fam.	AW 15-49	7,320	FR		X	Raw
Paraguay	May-Aug 1990	A	Gen. Paraguayo de Estudios de Pob.	AW 15-49	5,827	FR			Raw
Peru	Oct-Mar 1991/92	A	Instituto Nacional de Estadística	AW 15-49	15,882	FR		X	Raw
DHS-III									
Bolivia	Nov-May 1993/94	A	Instituto Nacional de Estadística	AW 15-49	10,000 ³	PR		X	Raw
Colombia	Jan-Mar 1995	A	PROFAMILIA	AW 15-49	8,500	PR		X	Raw
Guatemala	Jan-Mar 1995	A	Instituto Nacional de Estadística	AW 15-49	10,000	PR		X	Raw
Haiti	Jul-Oct 1994	B	Institut Haïtien de l'Enfance	AW 15-49	5,000	PR		X	Raw

¹ Funded by The World Bank
² No health or birth history section in the questionnaire
³ Household questionnaire was administered in approx. 30,000 households
A = Questionnaire used in countries with high contraceptive prevalence
B = Questionnaire used in countries with low contraceptive prevalence
AW = All women
EMW = Ever-married women
CMW = Currently married women
FR = Final report
PR = Preliminary report

Latin America Contraceptive Use Dynamics Seminar

Contraceptive discontinuation, failure, and switching behavior are increasingly important issues for family planning policy in countries that have achieved relatively high levels of contraceptive prevalence. As a result, there is a growing need for policy-relevant analyses of these issues in developing countries.

In February 1994, researchers from five Latin American countries attended a three-week seminar at DHS headquarters to learn how to analyze the

DHS-II calendar data on contraceptive use. One researcher was selected from each Latin American country in which a DHS-II survey had been carried out. The researchers who attended the seminar were: Elisabeth Ferraz (BEMFAM, Brazil), Myriam Ordóñez Gómez (PROFAMILIA, Colombia), Juan José Polanco (CESDEM, Dominican Republic), María Mercedes Melián (CEPEP, Paraguay), and Alberto Padilla (consultant, Peru).

The seminar introduced life table

methodology for the analysis of contraceptive discontinuation, contraceptive failure, and contraceptive switching behavior. Participants applied these techniques to the DHS-II data from their country, using programs developed by DHS staff, and prepared a report on contraceptive use dynamics for their country.

The reports were published by DHS in June and have been distributed to organizations in each country. A limited number of copies (in Spanish and Portuguese) are available from DHS headquarters in Calverton, Maryland. ■

WID Project Off to a Good Start

In October 1993, a Women in Development (WID) project was launched for the first time at DHS when Dr. Sunita Kishor joined the DHS staff as the Women in Development (WID) analyst. The project, which is funded by the Women in Development Office of USAID, has the objective of conducting comparative research on women's status and employment in DHS countries.

Dr. Kishor, who is experienced in research on gender issues in developing countries, also acts as the resident expert on issues related to women in development.

The first phase of the DHS WID project involves:

- Analyzing the existing DHS data on women's employment and status,
- Developing a comprehensive module on women's employment and status, and

- Fielding the women's employment and status module in a DHS-III survey.

In a later phase, Dr. Kishor will analyze the data gathered using the women's status and employment module and prepare a report on the results.

As part of the DHS WID project, a comparative analysis of gender differences in educational attainment, employment, age at marriage, fertility preferences, etc. will be undertaken utilizing data from surveys in 12 DHS countries in which both males and females were interviewed.

Dr. Kishor has completed preliminary drafts of two studies: one on labor force cycling behavior of women in Ghana and Bolivia, and the other on employment and the status of women in Egypt. Development of the women's status module is well underway, and DHS countries have been contacted about fielding the module. ■

Child Health in Malawi

Continued from page 5

AIDS is an increasing public health problem in Malawi. While general awareness of the problem is high, there remain significant segments of the population lacking specific knowledge about the disease, modes of transmission, and means of prevention. For example, about 30 percent of women

living in rural areas think that AIDS cannot be prevented and 34 percent do not think that a healthy-looking person can be carrying the AIDS virus.

The 1992 Malawi Demographic and Health Survey was implemented by the National Statistical Office and included a national sample of 4,849 women age 15-49 and 1,151 men age 20-54. Findings from the survey are published in a final report and summary report in English. ■

DHS Now in Calverton, Maryland

After nine years in Columbia, Maryland, the DHS program moved to Calverton, Maryland (some 15 miles south on I-95) in November 1993. Macro International made the move in order to combine its Columbia and Silver Spring staffs in a single location that is convenient to Washington, D.C., Baltimore, Maryland, and the BWI airport.

The new address for the DHS program is 11785 Beltsville Drive, Suite 300, Calverton, Maryland 20705 (Telephone 301-572-0200; Fax 301-572-0999).

DHS can also be reached by E-mail on the Internet using the following form of address:

lastname@macroint.com

For example, to contact Shea Rutstein the address would be

rutstein@macroint.com

Requests for reports and publications may be sent to:

reports@macroint.com

Requests for data and data request forms should be sent to:

archive@macroint.com

Please note that DHS is no longer using MCIMAIL for the Internet gateway. ■

New Publications

Women's Lives & Experiences: A Decade of Research Findings from the Demographic and Health Surveys Program was published by DHS for distribution at the International Conference on Population and Development in Cairo. Summarizing data from 10 years of DHS surveys, the chartbook provides a useful source of information on the health status of women and children in developing countries.

Final reports and summary reports are now available for the following DHS surveys:

- Burkina Faso 1993 (French)
- Egypt 1992 (English)
- Kenya 1993 (English)
- Madagascar 1992 (French)
- Malawi 1992 (English)
- Philippines 1993 (English)
- Rwanda 1992 (French)
- Senegal 1992/93 (French)
- Yemen 1991/92 (English).

Seven new reports in the *DHS Comparative Studies* series have been published. These are *Socioeconomic, Demographic, and Health Indicators for Subnational Areas* (No. 9) by Pradip K. Muhuri and Shea O. Rutstein; *Marriage and Entry into Parenthood* (No. 10) by Charles F. Westoff, Ann K. Blanc, and Laura Nyblade; *Sources of Contraceptive Methods* (No. 11) by Mohamed Ayad, Marilyn Wilkinson, and Melissa McNiff; *Children's Nutritional Status* (No. 12) by A. Elisabeth Sommerfelt and M. Kathryn Stewart; *Socioeconomic Differentials in Fertility* (No. 13) by Pradip K. Muhuri, Ann K. Blanc, and Shea O. Rutstein; *Demographic Characteristics of Households* (No. 14) by Mohamed Ayad, Andrea L. Piani, Bernard Barrère, Koffi Ekouevi, and James Otto; and *Infant and Child Mortality* (No. 15) by Jeremiah M. Sullivan, Shea O. Rutstein, and George T. Bicego.

Three new reports in the *DHS Methodological Reports* series have been published. These are *An Assessment of the Quality of Health Data in DHS-I Surveys* (No. 2) by Macro International Inc., *Methods of Estimating Contraceptive Prevalence Rates for Small Areas: Applications in The Dominican Republic and Kenya* (No. 3) by Alfredo Aliaga and Pradip K. Muhuri, and *Comparability of Questionnaires* (No. 4) by Alynne

Landers and Melissa McNiff (limited distribution).

Limited copies are available for the following recent DHS publications: Curtis, Siân L. and Fred Arnold. *An Evaluation of the Pakistan DHS Survey Based on the Reinterview Survey*; Kizito, P.M.L., Walter Obungu, Moses Kibet, and Wamucii Njogu. *Fertility Transition in Kenya*; and Obungu, Walter, Paul M. Kizito, and George Bicego. *Trends, Age Patterns, and Determinants of Early Childhood Mortality in Kenya*.

Six reports from the DHS Regional Analysis Workshop for Anglophone Africa have been published individually and as a single volume (*Fertility Trends and Determinants in Six African Countries*).

- Muganzi, Zibeon and Timothy Takona. *Fertility Decline and Demand for Family Planning in Kenya*.
- Makinwa-Adebusoye, Paulina K. and Bamikale J. Feyisetan. *The Quantum and Tempo of Fertility in Nigeria*.
- Komba, Aldegunda S. and Said M. Aboud. *Fertility Levels, Trends, and Socioeconomic Differentials: Findings from the Tanzania Demographic and Health Survey*.
- Kisanje, Molly and Josephine K. Kalule. *The Estimation of Potential Demand for Contraception and the Implication for Fertility in Uganda*.
- Dzekedzeke, Kumbutso and Nelson Nyangu. *Fertility Patterns and their Determinants in Zambia: Findings from the Zambia Demographic and Health Survey*.
- Muhwava, William B. and Ityai Muvandi. *Breastfeeding, Contraceptive Use, and Fertility in Zimbabwe: A Further Analysis of the Demographic and Health Survey*.

Nine individual reports have been published from the DHS Regional Analysis Workshop for Latin America (**Taller de Planificación Familiar: Necesidades Actuales y Perspectivas Futuras**).

- Ruiz Salguero, Magda. *Factores de Riesgo para la Salud Materno-Infantil, Colombia, 1990*.
- Torrez Pinto, Hugo. *Hacia un Conocimiento Ampliado de la Planificación Familiar en Bolivia*.
- Rivera Araujo, Genara. *Estudio de Papel de las Variables Intermedias en el Descenso de la Fecundidad Peruana*.

- Quental Ferreira, Inês. *Necesidade Insatisfeita e Demanda Total de Anti-concepção no Nordeste do Brasil, 1986-1991*.
- Loza, Gloria and Guillermo Vallenás. *Uso y Demanda de Métodos Anticonceptivos en el Perú*.
- Morillo Pérez, Antonio. *República Dominicana. Necesidades Insatisfechas y Demanda Total de Métodos de Planificación Familiar: Situación Actual y Perspectivas Futuras*.
- Báez, Clara. *República Dominicana: La Esterilización como la Opción Única. ¿Un Solución?*
- Ordóñez Gómez, Myriam. *La Necesidad Insatisfecha y la Demanda Total de Planificación Familiar en Colombia, 1990*.
- Haeussler, Rafael. *Demanda Total y Necesidad No Satisfecha de Planificación Familiar en Guatemala y su Diferenciación Étnica*.

Seven individual reports have been published from the DHS Regional Analysis Workshop in Francophone Africa.

- Fotso, Médard and Paul Roger Libité. *Attitude de la femme camerounaise vis-à-vis de la planification familiale : Les besoins non-satisfaits et l'intention d'utiliser la planification familiale*.
- Beidou, Abdoullahi and Abdoul-Rasaou Issa. *Les déterminants socio-économiques et culturels de la fécondité au Niger*.
- Sangaré, Solomani. *Les facteurs socio-économiques et culturels de la taille désirée de la famille au Mali*.
- Traoré, Baba. *Reproduction, allaitement et malnutrition chronique au Mali, quelles leçons?*
- Rwamucyo, Eugène and Sixbert Nduwimana. *Influence des facteurs socio-professionnels, politiques et culturels sur les comportements des femmes en matière de fécondité au Rwanda*.
- Diouf, Papa Demba and Issa Diop. *Ecart entre connaissance et pratique contraceptive à partir de l'Enquête Démographique et de Santé au Sénégal 1986*.
- Sinaré, Tinga and Duoba Pagari. *Fécondité au Burkina Faso: Niveaux, tendances et facteurs explicatifs*.

Five individual reports have been published from the Latin American Seminar on Contraceptive Dynamics (see page 8).

Continued on page 10

New Publications

Continued from page 9

- Anhel Ferraz, Elisabeth. *Dinâmica do Uso da Anticoncepção na Região Nordeste do Brasil: Uma Análise de Descontinuação, Falha, e Mudança de Métodos com Tábuas de Mortalidade.*
- José Polanco, Juan. *La Dinámica del Uso de la Anticoncepción en la República Dominicana: Un Análisis de Discontinuidad, Falha, y Cambio de Métodos con Tablas de Vida.*
- Mercedes Melián, María. *La Dinámica del Uso de la Anticoncepción en Paraguay: Un Análisis de Discontinuidad, Falha, y Cambio de Métodos con Tablas de Vida.*
- Ordóñez Gómez, Myriam. *La Dinámica Anticonceptiva en Colombia: Discontinuidad del Uso de Métodos Anticonceptivos, Cambio y Tasas de Falha de los Métodos.*
- Padilla, Alberto. *La Dinámica del Uso de la Anticoncepción en el Perú. Un Análisis de Discontinuidad, Falha, y Cambio de Métodos.* ■

DHS Data Archive

The DHS Data Archive has datasets available for 42 countries (see page 6-7). Datasets for the surveys currently in progress will be available after publication of the final report for each survey. Widespread interest in the DHS program has generated considerable demand for survey datasets. Currently, over 1500 volumes of DHS data have been sent to researchers at institutions around the world.

Datasets may be requested in any of three formats, depending on the researcher's needs: flat, rectangular, and hierarchical files. The files can be sent on Bernoulli cartridges, magnetic tape, or diskettes, according to the user's hardware and/or software capabilities. All data files are distributed with questionnaires, machine-readable data file descriptions, and associated documentation.

The cost for each dataset is \$200; however, for institutions in developing countries or for researchers from these countries the cost is \$50. To obtain DHS datasets researchers should complete a **data request form** and send it with a **description of the proposed analysis** to the DHS Data Archive.

To obtain a data request form, write to: **DHS Data Archive**, Macro International Inc., 11785 Beltsville Drive, Suite 300, Calverton, MD 20705, USA (Telephone 301-572-0200; Fax 301-572-0999).

The DHS data archive may also be contacted via electronic mail through Internet. Data request forms may be requested and submitted and other communications regarding the data archive are welcome. The E-mail address for the DHS data archive is **archive@macroint.com**.

New Technology Locates Sampling Areas in Côte d'Ivoire

For the first time, GPS (Global Positioning System) units have been used to determine the exact location of sampling areas in a DHS survey. In 1994, GPS units were used successfully during the implementation of the DHS survey in Côte d'Ivoire.

The small hand-held units, which are used to determine latitude and longitude based on readings obtained from orbiting satellites, are particularly useful in areas where the cartographic material may be incomplete or inaccurate. In Côte d'Ivoire, the survey staff used GPS units to take readings of locations, then recorded the information on paper and saved the data electronically. GPS units were used initially by survey staff to locate sampling points during the sample update and household listing phase of the survey; later, they were used by team leaders to locate the same sampling points during the data collection phase.



MACRO INTERNATIONAL/JUAN SCHOEMAKER

In the 1994 DHS survey in Côte d'Ivoire, hand-held GPS (Global Positioning System) units were used to determine exact geographical location during sampling and fieldwork activities. Here field staff are shown taking a reading from the orbiting satellites.

The precise geographic information provided by the GPS units enables comparison of DHS data with other databases, such as those having to do with the location of health facilities,

soil types and cultural subgroups, the location of urban markets, etc., thus greatly enhancing the potential usefulness of DHS data for spacial-economic analysis. ■

DHS Bids Farewell to Dick Cornelius

From its inception in 1984 until October of 1993 the DHS program was guided and overseen by Richard (Dick) Cornelius at USAID. Prior to that, he was the USAID technical coordinator for both the World Fertility Survey (1972-1984) and the Contraceptive Prevalence Surveys (1977-1985). In October 1993 he moved from USAID to the State Department.

Some at DHS have had the good fortune to work with Dick for most of the time he was with USAID, although no one has worked on as many survey programs as Dick himself. Many have benefitted from his thorough understanding of the technical intricacies of survey research. In addition, his input into survey design and advice on strategic and technical issues have been major factors in the success of the USAID-funded population programs.

Dick's hands-on management style contributed greatly to the smooth operation of the WFS, CPS, and DHS programs. Characterized by a desire to find workable solutions to sometimes difficult problems, his was a realistic approach to getting things done. He also had the ability to see the big picture through all the nitty-gritty detail. Add to this an extremely pleasant personality and it becomes clear why everyone at DHS was quite dismayed to hear about Dick's departure.

While we miss him, we all wish him every success in his new job at the State Department, where he is Deputy Coordinator for Population. We are also very pleased to be working with his successor, Rod Knight, and the staff of the Policy Division led by Scott Radloff.

Martin Vaessen
Project Director

DHS Publications

DHS publications are available through regional depositories and selected libraries. A list of those nearest you will be sent on request. A limited number of final reports, and other DHS publications, are available for distribution. To receive a list of DHS publications, or to receive the *DHS Newsletter*, write to: Ly Tun, Macro International Inc., 11785 Beltsville Drive, Suite 300, Calverton, MD 20705, USA.

■ **DHS Newsletter** — Published twice a year, the DHS newsletter provides information on the current status of DHS surveys.

■ **Final Reports** — DHS survey results are published in a final report approximately a year after completion of fieldwork. Currently, 57 final reports have been published, covering 53 standard DHS surveys and 4 other surveys (see pages 6-7).

■ **Summary Reports** — Summary reports are available for most DHS surveys. Published in the language of the country, these reports are designed for use by policymakers and planners in the survey countries. Summary reports have been published for 43 surveys.

■ **Trend Reports** — Trend reports are published for a few countries in which several DHS-type surveys have been completed.

■ **DHS Basic Documentation** — DHS survey methodology is described in the *DHS Basic Documentation* series. A list of the Basic Documentation for DHS-I and DHS-II is available

on request. DHS-III Basic Documentation is being prepared and will be published later this year.

■ **Tables and graphs in *Studies in Family Planning*** — Key findings from DHS final reports are summarized in tables and graphs published in the journal *Studies in Family Planning* (The Population Council, New York).

■ **DHS Further Analysis Series** — The results of further analysis studies carried out during the first phase of the DHS program were published in 10 reports by the Population Council (which provided technical assistance for the projects). In DHS-II, further analysis studies were published by Macro International (limited distribution). Additional further analysis studies are expected to be published as a result of collaborative research projects funded under DHS-III.

■ **DHS Comparative Studies** — Cross-national analyses of DHS data are presented in the *DHS Comparative Studies* series. Each presents results on a particular topic. Fifteen reports have been published in the series.

■ **DHS Methodological Reports** — Methodological and technical issues pertaining to survey research in the fields of population and health are presented in the *DHS Methodological Reports*. Four reports have been published in this series.

■ **DHS Working Papers** — Selected papers utilizing DHS data are published in the *DHS Working Papers* series (limited distribution).

Selected Statistics from DHS Surveys

	VITAL RATES			USE OF CONTRACEPTION (Currently Married Women 15-49)		MATERNAL CARE (Births in Last 5 Yrs.)		CHILD HEALTH INDICATORS		
	Total Fertility Rate ^a	Total Wanted Fertility Rate ^a	IMR/Under-5 Mortality ^b	% Currently Using Any Method ^c	% Currently Using Any Modern Method ^d	% Women Receiving Antenatal Care ^e	% Women Receiving Assistance at Delivery from Professional ^e	Median Duration (Months) of Breast-feeding ^f	% Children 0-35 Months Stunted ^g	% Children Fully Immunized ^h
SUB-SAHARAN AFRICA										
Botswana 1988	4.9	3.9	37/53	33	32	92	77	18	†	66
Burkina Faso 1993	6.9	6.0	94/187	8	4	59	42	25	25	35
Burundi 1987	6.9	5.8	75/152	7	1	79	19	24	47 ⁱ	37
Cameroon 1991	5.8	5.2	65/126	13	4	79	64	17	21	41
Ghana 1993	5.5 ^b	††	††	20	10	72	††	††	††	55
Kenya 1993	5.4	3.4	62/96	33	27	95	45	21	31	79
Liberia 1986	6.7	6.1	144/220	6	6	83	58	17	†	9
Madagascar 1992	6.1	5.2	93/163	17	5	78	57	19	45	43
Malawi 1992	6.7	5.7	134/234	13	7	90	55	21	41	82
Mali 1987	7.1	6.6	108/250	3	1	31	18	18	24 ⁱ	2
Ondo State, Nigeria 1986-87	5.9	5.9	56/108	6	4	80	59	18	32 ^j	25
Namibia 1992	5.4	4.8	57/83	29	26	87	68	17	29	58
Niger 1992	7.4 ^k	7.4 ^k	123/318	4	2	30	15	21	27	17
Nigeria 1990	6.0	5.0	87/192	6	4	57	31	20	37	30
Rwanda 1992	6.2	4.2	85/150	21	13	94	26	28	41	87
Senegal 1992-93	6.0	5.1	68/131	7	5	74	47	20	19	49
Sudan 1989-90	4.7	4.2	70/123	9	6	70	69	19	†	52
Tanzania 1991-92	6.3	5.6	92/141	10	7	92	53	22	38	71
Togo 1988	6.4	5.0	81/158	12	3	82	46	22	31 ⁱ	†
Uganda 1988-89	7.4	6.4	101/180	5	3	87	38	19	44 ⁱ	24
Zambia 1992	6.5	5.4	107/191	15	9	92	51	19	37	67
Zimbabwe 1988-89	5.4	4.4	53/75	43	36	91	70	19	30 ⁱ	67
ASIA/NORTH AFRICA										
Bangladesh 1993-94	3.4	††	87/133	45	36	26	10	††	††	59
Egypt 1992	3.9	2.7	62/85	47	45	53	41	19	26	67
Indonesia 1991	3.0	2.5	68/97	50	47	76	32	23	†	48
Jordan 1990-91	5.6	3.9	34/39	35	27	80	87	12	18	88
Morocco 1992	4.0	2.7	57/76	42	36	32	31	16	21	76
Pakistan 1990-91	5.4 ^k	4.7 ^k	91/117 ^k	12	9	26	19	20	43	35
Philippines 1993	4.1	2.9	34/54	40	25	83	53	14	†	72
Sri Lanka 1987	2.7	2.2	25/35	62	41	97	87	20	27 ⁱ	65
Thailand 1987	2.2	1.8	35/45	66	64	77	66	15	22 ⁱ	17
Tunisia 1988	4.2	2.9	50/65	50	40	58	69	15	18 ⁱ	79
Turkey 1993	2.7	2.7	53/61	63	35	62	76	12	19	65
Yemen 1991-92	7.7	6.0	83/122	10	6	26	16	16	†	45
LATIN AMERICA/CARIBBEAN										
Bolivia 1994	4.8	††	75/116	45	18	53 ^a	47 ^a	††	28	39
Brazil 1986 ^l	3.4	2.3	76/86	66	57	74	†	5	29 ^{m,i}	55
Brazil (NE) 1991	3.7	2.1	75/86 ⁿ	59	54	64	70	4	†	56
Colombia 1990	2.9	2.2	27/35	66	55	82	81	9	†	68
Dominican Republic 1991	3.3	2.6	43/60	56	52	97	92	6	17	37
Ecuador 1987	4.2	2.8	58/82	44	36	70	61	14	†	†
El Salvador 1985	4.2	4.0	71/98	47	45	†	86	15 ^o	†	52
Guatemala 1987 ^l	5.5	4.4	73/110	23	19	34	29	21	58 ⁱ	22
Mexico 1987	4.0	2.8	47/61	53	45	71	70	8	†	21
Paraguay 1990	4.7	3.5	34/43	48	35	84	66	11	17	33
Peru 1991-92	3.5	2.0	55/78	59	33	64	53	17	29	58
Trinidad & Tobago 1987	3.1	2.2	26/30	53	44	98	98	6	5 ⁱ	†

† = Not available from survey data

†† = Not available until publication of final report

^a Based on 3 years preceding survey (women 15-49)

^b Based on 5 years preceding survey

^c Excludes prolonged abstinence

^d Excludes periodic abstinence, withdrawal, and "other" methods

^e Care provided by medically trained personnel

^f Children <3 years (any breastfeeding)

^g Height-for-age z-score is below -2 SD based on the NCHS/CDC/WHO reference population

^h Children 12-23 months (BCG, measles, and 3 doses of DPT and polio)

ⁱ Children 3-35 months

^j Children 6-36 months

^k Based on 6 years preceding survey

^l Women 15-44 years

^m Northeast region only

ⁿ Based on 10 years preceding survey

^o Last-born child only

The Demographic and Health Surveys (DHS) program assists developing countries to conduct national surveys on population and maternal and child health. Funded primarily by the United States Agency for International Development (USAID), the DHS program is implemented by Macro International Inc. in Calverton, Maryland. The DHS Newsletter is published twice a year by Macro International Inc. to provide information about the DHS program and the current status of DHS surveys. Send correspondence to: DHS, Macro International Inc., 11785 Beltsville Drive, Suite 300, Calverton, MD 20705, USA (Telephone 301-572-0200; Telefax 301-572-0999). Project Director, Martin Vaessen; Deputy Director for Survey Operations, Jerry Sullivan; Deputy Director for Analysis, Shea Rutstein; Deputy Director for Dissemination and Data Utilization, Ann Way.